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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,597	02/04/2007	Akio Matsuhisa	5426FP-1	9532

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EXAMINER	
BABIC, CHRISTOPHER M	
ART UNIT	PAPER NUMBER
1637	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,597	MATSUHISA ET AL.	
	Examiner	Art Unit	
	CHRISTOPHER M. BABIC	1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 January 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-10,19 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-10,19 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of the Claims

Claim(s) 1, 3, 5-10, 19, and 20 are pending. The following Office Action is in response to Applicant's communication dated January 28, 2009.

Claim Rejections - 35 USC § 112 - Indefiniteness - Withdrawn

Applicant's claim amendments are sufficient to overcome the rejection of claim(s) 3 and 19 presented in the Office Action dated November 3, 2008.

Claim Rejections - 35 USC § 102 - Maintained

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 9, 10, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Hu (U.S. 5,939,251).

With regard to claims 1, 9 and 10, Hu teaches method of performing in situ PCR within a solid support having multiple compartments, wherein the cells are directly fixed on the solid support (fig. 3-6; col. 5-7, for example). Specifically, Hu teaches method

comprising: fixing a cell-containing sample on divided compartments of a support (fig. 6; col. 5, lines 35-45; teaches fixing cells on the bottom wall (slide) of multiple defined compartments, for example); pre-treating the sample to enable amplification of nucleic acids contained in the sample (the teaching of in situ PCR necessarily means the cell sample was treated in some manner to allow amplification); performing PCR by placing a PCR mixture, containing primers for amplifying a target nucleic acid, into the compartments of the support (col. 6, lines 1-25; teaches providing PCR reagents to multiple compartments and thermal cycling, for example); determining whether amplified nucleic acids in a PCR solution contains contain the target nucleic acid (col. 6, lines 25-35; teaches further identification of amplified nucleic acids, for example).

With regard to claim 3, due to the lack a definite "exposing" step, the heat from the PCR is thought to encompass the limitation.

With regard to claim 19, Hu teaches the slide as able to fit within a thermal cycling apparatus (col. 6, lines 15-25, GeneAmp, for example)

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the amplified gene to be detected existing extracellularly (pg. 2 remarks)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re*

Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The claimed invention does not require that the PCR solution, including the gene to be detected, be outside of the fixed cellular sample during detection.

Thus, the rejection is maintained.

Claim Rejections - 35 USC § 103 - Maintained

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 5 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu (U.S. 5,939,251) in view of Vilepontueau et al. (U.S. 5,776,679).

The teachings of the previously applied reference(s) have been outlined in the above rejections. The previously applied reference(s) do not expressly teach the labeling of nucleic acids during PCR or detection of PCR products through electrophoresis.

With regard to claim 5, Villeponteau provides a supportive disclosure that teaches labeling nucleic acids during in situ PCR through the incorporation labeled nucleotides (col. 42, lines 50-65, for example). The reference highlights that labeled nucleotides prevent leakage of PCR products.

Thus, in summary, it is submitted that it would have been *prima facie* obvious to a skilled artisan at the time of invention to incorporate labeled nucleotides into in situ the PCR of Hu since the prior art expressly suggests such a modification to prevent leakage of PCR products.

With regard to claim 20, the detection of PCR products through electrophoresis was well known as a standard method of PCR product detection. Villeponteau teaches such an electrophoresis method (col. 31, example 3, for example).

Thus, in summary, it is submitted that it would have been *prima facie* obvious to a skilled artisan at the time of invention to detect the PCR products of Hu by electrophoresis since the prior art recognized such a modification as standard within the art.

Response to Arguments

Applicant's arguments have been fully considered but they are not persuasive.

In response to applicant's argument that the examiner has failed to provide a reasoning to combine the cited references, it is noted that the rejection clearly states that the prior art recognizes that labeled nucleotides prevent leakage of PCR products. Thus, a skilled artisan would have been motivated to use such nucleotides. As noted above, the claimed invention does not require that the PCR solution, including the gene to be detected, be outside of the fixed cellular sample during detection.

Thus, the rejection is maintained.

2. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu (U.S. 5,939,251) in view of Vilepontueau et al. (U.S. 5,776,679) as applied to claim 5, and in further view of Stapleton et al (US 6,103,192).

The previously applied reference(s) do not expressly teach the detection of labeled PCR products through hybridization to immobilized probes in microarray format.

Stapleton provides a supportive disclosure that teaches a method wherein various biological specimens are collected, dried, transported, stored and processed on matrixes which adhere cells and viruses. The method involves fixing such samples to the matrixes, exposing the samples by heating them (col.17, lines 31-32, for example), applying the matrixes to thin-walled tubes for amplification (col. 17, lines 23-35; col.22, example 22, for example), and detection by either gel electrophoresis (col.17, lines 10-15; col.22, example 22, for example), or by applying the amplified product and detector

probes to a probe array comprising capture oligonucleotides (col.16, lines 9-60; col.24, lines 21-50, example 7, for example). Furthermore, Stapleton states that such a detection system eliminates the need for gel electrophoresis, less amplification product is needed as the sensitivity of the detection increases, and allows for multiple oligonucleotide sequences at different array positions to be analyzed in the same detection reaction (col.16, lines 26-28, 57-59).

Thus, in summary, it is submitted that it would have been *prima facie* obvious to a skilled artisan at the time of invention to detect the PCR products of Hu through use of immobilized probes in a microarray format since the prior art expressly suggested such a modification to allow for the analysis of multiple sequences at once.

Response to Arguments

Applicant's arguments have been addressed in the response(s) set forth above.

Conclusion

No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher M. Babic whose telephone number is 571-272-8507. The examiner can normally be reached on Monday-Friday 7:00AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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